REMARKS

Reexamination and reconsideration of the present application are requested.

Applicants have amended claims 8 and 13 and added new claims 14-17. Accordingly, claims 8 and 13-17 remain pending in the application.

OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

Applicants acknowledge the obviousness-type double patenting rejection of claims 8 and 13 over U.S. Patent 6,239,604. Once this application is deemed by the Examiner otherwise to be in condition for allowance such that no further amendments are needed, Applicants will be prepared to sign and submit an appropriate, proper Terminal Disclaimer.

35 U.S.C. § 102

The Office Action rejected claim 13 under 35 U.S.C. § 102 over Harnden Jr. et al. U.S. patent 4,584,525 ("Harnden").

Applicants respectfully traverse that rejection for at least the following reasons.

Claim 13 is directed to an **integrated circuit device including a signal line** and a current measuring device for determining a current in the signal line.

Applicant respectfully submits that Harnden does not disclose such an **integrated** circuit including a signal line whose circuit is to be measured. The Office Action states that the system disclosed by Harnden is an "'integrated" circuit' since this term would cover a variety of many electrical device/circuits" (Office Action at

page 2, paragraph 2, lines 7-9).

Applicant respectfully disagrees. While it is true that the term "integrated circuit" covers a variety of electrical device/circuits, it does not cover the device of Harnden. In that regard, at the outset, Applicant submits that even under any ordinary definition of integrated circuit, the word "**integrated**" has a meaning, and could not be ignored by the Office Action and read out of Applicants' claim.

So, for example, "Merriam-Webster" defines "integrated circuit" as: "a tiny complex of electronic components and their **connections that is produced in or on a small slice of material** (as silicon). Similarly, "The Illustrated Dictionary of Electronics, 7th Ed.," defines "integrated circuit" as: "a circuit whose components and connecting 'wires' are made by processing distinct areas of **a chip of semiconductor material**, such as silicon." Copies of these exemplary definitions are attached.

Moreover, M.P.E.P. § 2111.01 provides that Applicants may provide their own particular definition of a claim term in the specification, as long as the meaning assigned to the term is not repugnant to a term's well known usage (citing In re Hill, 161 F.2d 367, 73 U.S.P.Q. 482 (C.C.P.A. 1947).

Significantly, Applicants have stated in their specification that:

> "The term `integrated circuit` used throughout this document is understood to include not only `traditional` ICs, with an electronic circuit on a semiconductor substrate, but also devices comprising compositions of these substrates, such as Multi Chip Modules, and

devices based on other technologies like Silicon On Insulator."

In contrast to an **integrated circuit** as defined either by any common dictionary definition or, more particularly, Applicant's specification, Harnden discloses a system 10 for measuring current flowing in a **discrete conductor** 11, where conductor 11 "is of a known wire size having a known diameter" (col. 2, lines 8-11). The system 10 includes a pair of contacts 14a and 14b designed to pierce a tubular sheath 12 that houses the wire 11 and to make contact with the wire 11.

Therefore, Applicants respectfully submit that Harnden does not disclose an integrated circuit including a signal line and a current measuring device for determining a current in the signal line.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 13 is patentable Harnden.

35 U.S.C. § 103

The Office Action rejected claim 8 under 35 U.S.C. § 102 over Lieneweg U.S. Patent 4,725,773 ("Lieneweg") in view of Harnden.

Applicants respectfully traverse that rejection for at least the following reasons.

Claim 8 is directed to a method for inspecting an integrated circuit that includes determining a signal current flowing through the signal line on the basis of the voltage and the resistance of the segment of the signal line.

No such method can be produced by any combination of Lieneweg and

Harnden.

The Office Action stated that "Lieneweg does not mention about determining the current flowing through each pair of Tab."

Applicants respectfully disagree. Applicants respectfully submit that Lieneweg specifically teaches that the current source 70 applies a **predetermined current** across the pair of tabs (see col. 3, lines 56-62). Indeed, the fact that the current is predetermined by the current source is critical in Lieneweg because the entire **object** of Lieneweg is to provide a method of determining the **resistance** across an interface 51 between upper and lower levels. This is in direct contrast to the method of claim 1, where the resistance across a segment of signal line is known, and we are trying to determine a signal current flowing through the signal line.

Meanwhile, the Office Action stated that:

> "it would have been obvious for one of ordinary skill in the art to use the teaching of Harnden, Jr. et al. to the device of Lieneweg to determined the current **if** both of the voltage and **the resistance values are known** . . . ."

(Office Action at page 3, lines 7-9).

However, Applicants respectfully note that the resistance values in Lieneweg are **never known**. Indeed, the entire, **fundamental purpose of Lieneweg is to determine an unknown resistance/conductance** (see, e.g., col. 1, lines 61-68; col. 2,

lines 56-60; col. 3, lines 25-37; col. 4, lines 2-4).

Therefore, Applicants traverse the proposed combination of Lieneweg and Harnden, and respectfully submit that one cannot modify Lieneweg by combining it with Harnden or any other reference which attempts to measure current and assumes that the resistance is known, as this is directly contrary to the teachings and objectives of Lieneweg.

Accordingly, for at least these reasons, Applicant respectfully submits that the method of claim 8 is patentable over Lieneweg and Harnden.

NEW CLAIMS 14-17

Claim 14

New claim 14 depends from claim 8 and is deemed patentable for at least the reasons set forth above with respect to claim 8, and for the following additional reasons.

Among other things, in the method of claim 14 measuring the voltage includes: connecting first and second inputs of a differential pair of transistors to first and second sides, respectively, of the segment, and making a first measurement; reversing the connection of the differential pair of transistors to the segment by connecting the first and second inputs of the differential pair of transistors to the second and first sides of the segment, respectively, and making a second measurement; and combining the first and second measurements to derive a result for use as the measured voltage over the segment.

Applicants respectfully submit that no such features are disclosed in Lieneweg, Harnden, or any combination thereof.

Accordingly, for at least this additional reason, Applicant respectfully submits that the method of claim 14 is patentable over Lieneweg and Harnden.

Claims 15-17

New claims 15-17 depend from claim 13 and are deemed patentable for at least the reasons set forth above with respect to claim 13, and for the following additional reasons.

Claim 15

Among other things, in the integrated circuit of claim 15 the voltage measurement device includes means for toggling connections between first and second sides of the segment and first and second inputs of a differential pair of transistors.

Applicants respectfully submit that no such features are disclosed in Harnden.

Accordingly, for at least this additional reason, Applicant respectfully submits that the method of claim 15 is patentable over Harnden.

Claim 16

Among other things, the integrated circuit of claim 16 includes means for successively connecting the voltage measuring device to the segment of the signal line and to a segment of a second signal line of the integrated circuit.

Applicants respectfully submit that no such feature is disclosed in Harnden.

Accordingly, for at least this additional reason, Applicant respectfully submits that the method of claim 16 is patentable over Harnden.

The Illustrated Dictionary of Electronics

Seventh Edition

Stan Gibilisco
Editor-in-Chief

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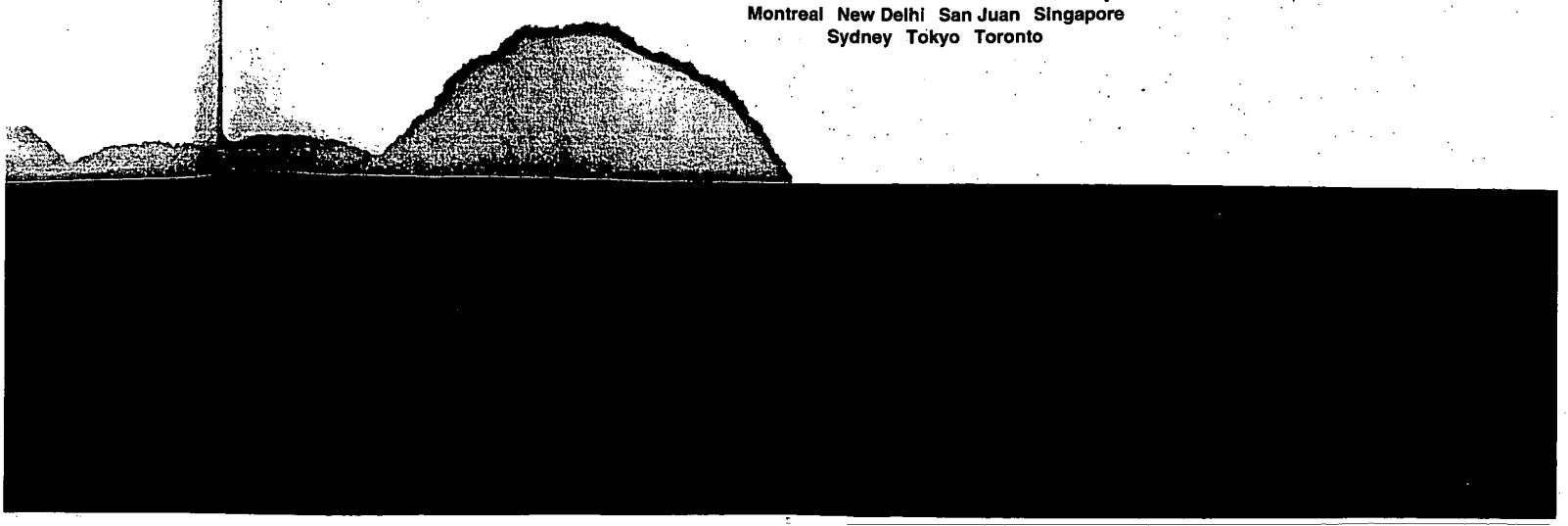


integrated capacitor In an integrated circuit, a fixed capacitor in which one plate is a layer of material diffused into the substrate, the dielectric is a thin-oxide film grown on top of the first layer, and the other plate is a metal layer deposited on top of the oxide film.

integrated circuit Abbreviation, IC. A circuit whose components and connecting "wires" are made by processing distinct areas of a chip of semiconductor material, such as silicon. Classified according to construction (e.g., *monolithic IC, thin-film IC, hybrid IC*).

integrated data processing Abbreviation, IDP. The detailed electronic classification, sorting, storage, and mathematical processing of data within a coordinated system of equipment, usually at one location.

integrated electronics The branch of electronics that is concerned with the design and fabrication of integrated circuits.

integrated resistor See DIFFUSED-LAYER RESISTOR.

Integrated Services Digital Network Abbreviation, ISDN. A scheme via which the signal-carrying ability of metallic wires is optimized. Involves the digitization of data, including text, images, and voices/music.

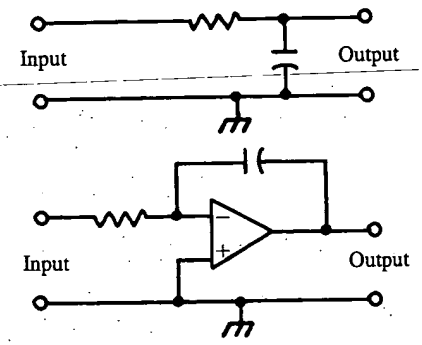
integrating circuit See INTEGRATING NETWORK.

integrating galvanometer A device for measuring the change in electric flux produced in a coil in an electric field. Even very slow changes can be measured.

integrating meter An instrument whose indication is a summation (usually) of an electrical quantity that is time-dependent (e.g., *ampere-hour meter* and *watt-hour meter*).

integrating motor An electric motor that follows the integral of the input signal. The angle of rotation of the motor shaft is equal to the integral of the input waveform.

integrating network A four-terminal network whose output voltage is proportional to the time integral of the input voltage. It can be a passive resistance-capacitance (RC) circuit or it can use an operational amplifier. Compare DIFFERENTIATING NETWORK.



integrating networks

integrating photometer A photometer whose reading is the average candlepower at all angles in one plane.

integration **1.** The process of determining a mathematical function when its derivative is given. **2.** The processing of a signal by an INTEGRATOR circuit. **3.** Collectively, the processes by which an INTEGRATED CIRCUIT is manufactured.

integrator **1.** See INTEGRATING NETWORK. **2.** A device having an output variable whose value is proportional to the integral of one variable, with respect to another, or is proportional to the integral of an input variable, with respect to elapsed time.

intelligence **1.** Meaningful data that modulates a carrier [e.g., the voice or music in a frequency-modulated (FM) radio signal, or the image in a television signal]. **2.** Also called *machine intelligence*. The quality of a system or device, especially a computer, that allows it to "learn" (i.e., to better its capability by repeatedly operating on a given problem).

intelligence bandwidth **1.** The bandwidth necessary to convey a specified amount of data within a certain period of time. **2.** The total bandwidth of one complete signal channel in a communications or broadcast system.

intelligence signal **1.** A signal that conveys data or information. **2.** The modulating waveform in a communications or broadcast transmission.

intelligent terminal A computer terminal (e.g., an input/output video display/keyboard unit) that through its circuitry (i.e., by use of a microprocessor) has some data-processing ability.

intelligibility tests Tests that measure the coherence of electronically reproduced speech.

intensification of image See IMAGE INTENSIFICATION.

intensifying ring In some electrostatic cathode-ray tubes, an internal metal ring serving as an extra anode to accelerate the beam and, thus, brighten the image.

intensity The degree or extent of a phenomenon (such as amplitude, brightness, loudness, power, force, etc.).

intensity control In an oscilloscope circuit, the potentiometer that adjusts the direct-current voltage on the control electrode of the cathode-ray tube and, accordingly, the brightness of the image. Also called BRIGHTNESS CONTROL and BRILLIANCE CONTROL.

intensity level **1.** A measure of sound magnitude, expressed in decibels, with respect to a value of one microwatt per square centimeter (10^{-6} W/cm^2) at sea level in the atmosphere. **2.** The setting of the brightness control in a cathode-ray-tube device.

intensity modulation **1.** Modulation of electron-beam intensity in a cathode-ray tube. Also

Merriam-Webster DICTIONARY

One entry found for **integrated circuit**.

Main Entry: **integrated circuit**
Function: *noun*
Date: 1962
: a tiny complex of electronic components and their connections that is produced in or on a small slice of material (as silicon)
- **integrated circuitry** *noun*

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